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FRAMING EFFECTS IN POLITICAL DECISION MAKING: EVIDENCE FROM A NATURAL VOTING EXPERIMENT

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Abstract

This paper analyzes a recent ballot in which two virtually identical popular initiatives, both demanding a decrease in the legal age of retirement in Switzerland, led to differences in approval rates of nearly seven percentage points. Based on this unique natural experiment, the existence of emphasis framing effects is tested for and their determinants are identified outside of the controlled settings of laboratories. Nonetheless, the analyzed setting allows for considerably more control than usually available in the field: All party, government and interest group recommendations were symmetric for both initiatives, and the simultaneous vote rules out potential variation of individual preferences and compositional changes of the electorate over time. Using community and individual level data it is shown that the difference in approval rates is largely due to the different emphases in the initiatives' titles.

JEL Code: D01, D72, H55, J26.

Keywords: framing effect, voting, direct democracy, pension reform, bounded rationality, natural experiment.

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1 Introduction

The *way voting issues are framed* can be expected to have an impact on the voting outcome. If complex issues must be explained to the electorate, the media and opinion leaders are bound to play an important role. However, it is usually difficult if not outright impossible to "measure" framing effects in the field, as the impact of preferences and information cannot easily be disentangled. Consequently, most of the rapidly growing literature on framing effects is based on lab experiments and hypothetical questionnaire studies. However these results are often criticized for their artificiality and for not taking into account the complexity of political decision-making (e.g. see Sniderman (2000)).[1] More recent experimental evidence taking contextual factors into account suggests that the importance of framing is limited (See for instance Bless et al. (1998), Brewer (2001) or Druckman (2001*b*, 2004)). To what extent framing affects real world political decision making remains largely unexplored.[2]

The paper analyzes a recent natural experiment with two virtually identical popular initiatives in Switzerland. Both demanded a decrease in the eligibility age for full retirement benefits, as well as additional flexibility for early exits out of the labor market. In spite of how similar the two initiatives were, the outcome showed a difference in the approval rates of nearly seven percentage points on average. In that the electorate voted on both initiatives *simultaneously*, potential variation of individual preferences and compositional changes of the electorate over time can be ruled out. Furthermore, party, government and interest group recommendations were identical, and media coverage symmetric for both initiatives. This setting therefore allows for considerably more control than generally available with field data and complements the existing experimental literature.

[1] See also Levitt and List (2006) or Harrison and List (2004) for extensive discussions concerning the external validity of lab experimental results.

[2] See Bertrand et al. (2006) and **?** for field experimental evidence for framing effects in the consumer credit market.

This unique natural experiment is analyzed to test the existence of framing effects and identify their determinants outside of the controlled settings of laboratories. Using community and individual level data it is shown that the difference is largely due to the use of different frames.

The community level data indicates that the difference between the two approval rates is systematic and does not decrease with the number of voters, as would be expected if citizens made random errors. Part of the difference can also be attributed to communicative voting. However, the observed pattern of communicative voting cannot be reconciled with existing *rational* strategic voting theories.

For the analysis of the individual level data binary probit models reveal that the probability to vote differently is affected by changes in perceived content (= accessibility) and belief importance (= weight). Both factors have been identified as mediators of emphasis framing effects in existing experimental literature (see Chong (1993), Zaller and Feldman (1992) and Nelson et al. (1997*b*)). Hence, the results suggest that the difference in voting outcomes is primarily due to an emphasis framing effect. Moreover, the existence of an a priori opinion, more experience with ballots and higher wealth were found to reduce the propensity to vote differently.

The remaining part of this paper is structured as follows. In Section 2 the current state of research with regard to framing effects is briefly reviewed and related to the contributions of the paper. Section 3 introduces the natural experiment and Section 4 discusses the data and appropriate estimation strategies. In Section 5, the results are presented and discussed. Section 6 concludes.

2 A Primer on Framing Effects

Frames can broadly be defined as representations of information. Framing effects occur if individuals alter their evaluation, choice or action after considering alter-

native frames (e.g. see Jacoby (2000)). The discussion on framing in economic decision-making was mainly initiated by Tversky and Kahneman (1981) in the early 80s. Since then the amount of literature has been growing rapidly. Framing effects have been identified in a great variety of contexts such as risky choice (Kühberger (1998)), health related choice (Marteau (1989)), elections (Hetherington (1996)), social dilemma (Andreoni (1995)) and marketing (Johnson (1987)) to name only a few. Framing effects and the resulting phenomenon of preference reversal, are considered a violation of the invariance axiom, which underlies rational choice models (see Tversky and Kahneman (1986)). Hence, the appropriateness of rational choice models (Grether and Plott (1979)) and in a political context the competence of citizens (Entman (1993)) are seriously questioned.

The great variety and ambiguity of experimental results concerning the magnitude and causes of framing effects has led to the search of unifying theoretical models and categorization. Levin et al. (1998) and Druckman (2001*b*) provide a broad categorization: These scholars argue that *emphasis framing effects* have to be distinguished from *equivalency framing effects.*[3] In equivalency framing effects, preference reversal is induced by the use of different, but logically equivalent phrases (See Rabin (1998)).[4] In emphasis framing effects, preferences change due to different weights given to subsets of relevant information (e.g. emphasizing the economic benefits of a certain policy versus its social aspects). In that the natural experiment discussed in the paper can be considered to belong to this category, in the following discussion the terms frames and framing effects refer to emphasis frames.

Early evidence suggested that frames influence decision-making through a change in the accessibility of relevant attributes.[5] Hence, frames determine which

[3]Alternatively, equivalency frames are denoted as "valence frames" (Levin et al. (1998))

[4]Tversky & Kahneman's 1981 famous "Asian Disease Problem" can be put under this heading.

[5]The concept of accessibility is also denoted as priming (see Nelson and Oxley (1999)).

attributes are "top of the head" (e.g. Chong (1993) and Zaller and Feldman (1992)). More recent evidence provided by Nelson et al. (1997*a*) and Nelson and Oxley (1999) however, indicates that instead frames change the weight given to different accessible attributes. The distinction between these two causes is highly relevant in discussing the implications of framing effects on citizens' competence. In contrast to the accessibility argument, which underlies "the passive receiver thesis", the mechanism proposed by Nelson et al. (1997*a*) implies that citizens can react in a more deliberative manner to different frames (see Brewer (2001)). Thus the latter argument is less pessimistic with regard to the implications of framing effects for citizens' competence. The ability of frames to change the weight given to beliefs is seen as "... an essential distinction between framing and other forms of communication-based attitude change [...] (Nelson and Oxley (1999) p. 1041)". Finally some evidence from neuroscience suggests that frames differ in difficulty and thus in the cognitive effort necessary to process them (see Gonzalez et al. (2005)).[6]

The prevalence of framing effects and their magnitude varies substantially with the experimental conditions (e.g., Kühberger (1998)). This has led to serious critique concerning the external validity of those experimental studies. Since comparisons are predominantly made between individuals, individual differences in partiality to framing effects are often neglected. But most important, the real world is much more complex, especially in a political context. Based on this criticism, scholars started to demonstrate that various *contextual differences* (such as credibility, party endorsement, interpersonal communication and competing frames) and *individual differences* (such as knowledge, existence of an a priori opinion, active processing, gender and age) may play an important role in limiting the influence of frames (e.g. Brewer (2001), Druckman (2001*a*,*b*,*c*, 2004),

[6]McElroy and Seta (2003) provide additional evidence that is consistent with the cognitive effort hypothesis. Note that both studies are with respect to equivalency frames. However, we belief that these results might also have their relevance in the context of emphasis frames.

Druckman and Nelson (2003), Sniderman and Theriault (2004), Fagley and Miller (1997, 1990), Haider-Markel and Joslyn (2001), Joslyn and Haider-Markel (2006), Kim et al. (2005), Miller and Fagley (1991), Nelson et al. (1997*b*) and Stanovich and West (1998)) However, most of these refined experiments explain only a fraction of the influence of these factors.

3 A Natural Experiment: Two Virtually Identical Initiatives

3.1 Institutional Background

3.1.1 The System of Referendums and Initiatives

An important and well-known feature of Switzerland's direct democracy is the system of mandatory and facultative referenda and popular initiatives. The federal or cantonal constitutions specify what kinds of laws and other factual issues are imperatively subordinate to a *mandatory referendum*. This is the case, for example, for constitutional revisions or the ratification of international treaties. All other laws are subject to a *facultative referendum*. 50'000 voters (about 1.2% of the electorate) can demand a facultative referendum within three months after a law has been passed.

The voters themselves have the possibility to demand a new bill through a *popular initiative*. At the federal level, only constitutional amendments are possible. Any eligible voter (or group of voters) collecting 100'000 signatures (roughly 2.4% of the electorate) for a new proposal can initiate a ballot on the issue. Once an initiative has collected the necessary number of signatures, the federal (or cantonal) parliament is obliged to discuss the initiative within a certain time frame. Within this time period, a recommendation is made as to its acceptance or its rejection. For an initiative to be approved in Switzerland an overall majority of

votes must be obtained *and* the initiative must be accepted by the majority of cantons. [7]

In that popular initiatives at the federal level may only propose changes to the constitution (but not to the law), many proposals that are intended to change the law are formulated as constitutional amendments. If the electorate approves an initiative, the exact wording of the corresponding law must be decided upon by the parliament, and is done so in a quite liberal manner.

3.1.2 The Swiss Pension System

Switzerland's pension system has two main pillars of approximately equal size: a publicly financed pay-as-you-go scheme (called AVS)[8] and a mandatory fully-funded occupational pension scheme. The goal of the first pillar, AVS, is to provide a basic retirement income. It is financed by a proportional payroll tax on all labor income (without any cap) and general government revenues. There is a weak tax-benefit link for low and lower-middle income individuals. However, a majority of workers with an uninterrupted working career (which is still typical for male individuals in Switzerland) qualify for a benefit at or close to the maximum yearly amount of 25'800 SFR ($\approx$ 20'000 USD or 16'000 Euro) for singles and 38'700 SFR ($\approx$ 30'000 USD or 24'000 Euro) for couples. AVS benefits are indexed to the mean of inflation and nominal wage growth.

The statutory retirement age is 65 for men and currently 64 for women. Retirement at 65/64 is not mandatory by law, but reaching age 65 for men, or age 64 for women is rather an eligibility condition for receiving public pension benefits. Benefits can be claimed up to two years earlier, albeit at an actuarially fair reduction. Most labor contracts specify a retirement age that coincides with the eligibility age. The same is true for the privately managed, but mandatory funded pension schemes. Thus the eligibility age defined in the first pillar has

[7] Several initiatives were not approved due to their inability to fulfill the latter condition.

[8] AVS = "Assurance–Vieillesse et Survivants" in French.

important spill-overs to other parts of the labor market and is, therefore, a crucial and hotly debated policy parameter.

The Swiss first pillar AVS is immensely popular among the public and most political forces. It played a critical role in almost eliminating poverty in old age and is characterized by a high level of stability, universality in coverage, and very low administrative costs. As is the case in other countries, upcoming demographic changes will threaten the financial viability of the system and call for appropriate measures to be taken, such as increases in the statutory ages of retirement. Due to its popularity, the AVS is viewed as a crucial element in social cohesion in Switzerland. Any attempt to change its structure is closely monitored and triggers widespread discussion in the media.[9]

3.2 The Initiatives and Their Political Background

The age of retirement for women in the Swiss first pillar was increased from 62 to 64 years (with a gradual phase-in) as an important part of the so-called 10th revision of the AVS law in 1995. This unpopular increase triggered a number of reactions notably from the left side of the political spectrum. However, many opponents to the increase in age of female retirement chose not to support the referendum opposing the 10th revision because this would have threatened the undisputed parts of the reform package.[10] As a consequence, the 10th revision passed the referendum with a majority of 61% of voters in 1995.

After the referendum, the Swiss Association of Labor Unions, one of the main opponents to the increase in the female retirement age, started a popular initiative

[9]The first eight revisions to the AVS law were not challenged by facultative referenda, primarily because they implied extensive coverage and benefit increases. The 9th revision of the AVS, which reduced supplementary benefits for spouses of retired individuals, was the first for which a referendum was initiated. The referendum failed by a large margin.

[10]Notably these included the introduction of many elements, which improved the safeguarding of women's interests.

(initiative 444) demanding the reversal of this aspect of the reform, as well as the possibility of early retirement for men (under certain conditions and under actuarially fair reductions). This proposal was rejected by a 59% majority of voters in 1998.

The two initiatives discussed in this paper took a similar path. Instead of primarily concentrating on the retirement age for women, these proposals demanded a more flexible and earlier retirement age for both men and women. The initiatives were labeled as follows:

- **Initiative 469:**

  Title (translated): "in favor of more flexibility in the AVS — against an increase in the age of female retirement eligibility"

  Contents: Retirement benefits may be claimed after reaching the age of 63 and in the absence of paid work or if earned income falls below 150% of the minimal retirement benefit. The law specifies the age, at which benefits may be claimed unconditionally.

  Origin: Swiss Association of Commercial Employees (SACE)

- **Initiative 470:**

  Title (translated): "in favor of flexible retirement starting at age 62, for women as well as men"

  Contents: Retirement benefits may be claimed after reaching the age of 62. By gainful employment after the age of 62, the law specifies the eligibility requirements without the condition of leaving the labor market, and regulates the eligibility conditions for partial benefits for those reducing their time at work. The law also allows for a reduction in the age of eligibility as well as under certain conditions early withdrawals.

  Origin: Switzerland's Green Party

As outlined before, the exact wording of the corresponding law would have had to be decided on by the parliament, had the electorate accepted the initiative(s). Given current (and well-known) practice, it is very likely, that the two initiatives would have led to virtually identical outcomes with regard to the exact formulation of the law.

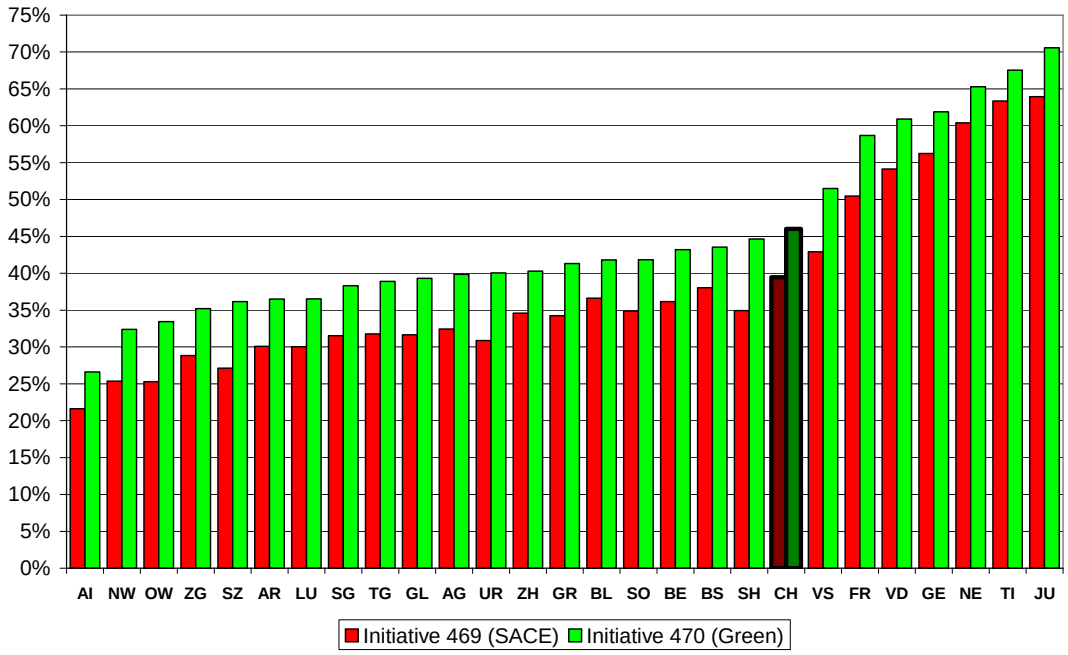
An important question to be dealt with is to why the initiative committees did not join forces, and why neither of the two proposals was withdrawn. We talked to representatives of both parties: The Green Party planned on launching a second initiative with a proposal to finance the AVS with an energy tax. Therefore, they considered the initiative as a means to gain popularity for their subsequent proposal. The SACE's initial focus was mainly on women's retirement age, but they revised and extended the final proposition to also include men. Apparently both parties expected higher approval rates for their own proposal, and were not willing to sacrifice this advantage. Nevertheless, the two initiative committees were not competing with one another and mutually supported each other. Both acknowledged that either proposition would have led to an identical outcome after legislation.

3.3 A First Cut of the Data

Despite the similarity of the two proposals, the resulting approval rates were strikingly different (see Figure 1). Initiative 469 (SACE) received only a positive vote share of 39.5%, while Initiative 470 (Green) received 46.0% approval and was accepted in one more canton. Although approval rates were considerably higher in French speaking areas (by approximately 20% on average), the average difference in outcomes of the two initiatives matched the one observed in German speaking areas. The Italian speaking regions (see bar TI in Figure 1) presented a dramatically higher support of the initiatives (by more than 30%), but only a 3%

difference.[11] Notably, the electorate in the canton of Valais approved the Green but not the SACE proposal.

Figure 1: Approval Rates by Cantons



Note: The bold bars labeled with **CH** represent the average approval rates of all 26 cantons. The Italian speaking canton of Ticino (TI), and all predominantly French speaking cantons have higher than average approval rates: Valais (VS), Fribourg (FR), Vaud (VD), Genève (GE), Neuchâtel (NE), and Jura (JU). The remaining German speaking cantons are denoted as follows: Appenzell i.Rh. (AI), Nidwalden (NW), Obwalden (OW), Zug (ZG), Schwyz (SZ), Appenzell a.Rh. (AR), Luzern (LU), St. Gallen (SG), Thurgau (TG), Glarus (GL), Aargau (AG), Uri (UR), Zürich (ZH), Graubünden (GR), Basel-Land (BL), Solothurn (SO), Bern (BE), Basel-Stadt (BS), Schaffhausen (SH).

The difference in outcomes was also noted in the so-called VOX72 analysis of telephone interviews conducted after the ballot, albeit to a lesser degree:[12]

[11] There might also be differences in the different translations of the proposals. According to an expert in the field, the translations do not differ in contents.

[12] See Sidler et al. (2001), translated from German. Similar VOX72 telephone interviews are

"Surprisingly, however, the initiative in favor of allowing flexibility in the AVS, initiated by the association of commercial employees, was rejected by 61% of the votes. Thus this initiative was rejected at a significantly higher rate than the initiative of the Green Party with a very similar content, asking for a flexible retirement age starting at 62 (with 54% of the votes)."

The published results of the VOX72 analysis allude to the different perceptions of the initiatives, in particular the importance of the explicitly mentioned lower retirement age for both genders in the title of the Green Party's initiative. As illustrated in Table 1 the Green's initiative, which emphasized the retirement age of 62 in its title, was apparently associated much more often with a lower retirement age. Alternatively, the SACE's initiative, which emphasized opposing an increase of women's retirement age in its title, was more often associated with the aspect of women's retirement age. Unfortunately, the original VOX72 analysis suffers from a number of shortcomings in that its conclusions are exclusively drawn from descriptive statistics.

This unusual natural experiment allows us to test for the importance of emphasis framing effects and their determinants under an amount of control that is usually unattainable with field data. *First*, the constituency voted simultaneously for both proposals on the 26th of November 2000. Hence, we can rule out potential changes in individual preferences due to electoral learning effects and compositional effects over time. *Second*, all parties, the government and interest groups gave symmetric recommendations for both proposals. The difference thus cannot be attributed to the use of recommendations as a mental shortcut or heuristic for uninformed voters. The use of such heuristics clearly needs to be distinguished from framing effects. If people use party recommendations as a signal, their preferences are likely to be unaffected by the framing of the two initiatives.[13] *Third*,

conducted after all important federal ballots.

[13]See for example Lau (2003), Lau and Redlawsk (2001) or Lupia (1994) for discussions and

Table 1: Perception of the Initiatives' Content

What was the content of...?	**SACE** # Answers	**Green** # Answers	**Signed rank test** Prob> $\|z\|$
Women's retirement age	86	19	0.0000
Lower or flexible retirement age	466	510	0.0247
Flexibility	176	156	0.2095
Part-time pension		3	
Financial aspects	88	91	0.7932
Other statements	62	81	0.0688
Similar to SACE		45	
Don't know / no answer	346	345	0.9478
Total	1048	1046	

Note: Data from the VOX72 telephone survey. Subjects were asked to recall the content of the Initiatives 469 (SACE) and 470 (Green). The total number of answers exceeds the sample size of 1024 due to the possibility of multiple answers. The last column contains p-values from a two-sided Wilcoxon signed-rank test.

both initiatives enjoyed equal media coverage. As a consequence, there should not be any asymmetries in saliency or information. The fact that there was an equal turnout for both the SACE's (41.66%) and the Green Party's initiative (41.71%) underscores that the electorate was symmetrically informed on both initiatives. If informational differences were present, we would expect that the turnout for the two initiatives would differ.[14] Furthermore, among the voters there existed no significant differences in the ability to remember the initiatives or their content (see Table 1).

experimental evidence concerning the role heuristics play in political decision-making. Druckman (2001*c*) demonstrates that the use of credible party endorsement significantly reduces the magnitude of preference reversal (see also Haider-Markel and Joslyn (2001)).

[14]See Feddersen and Pesendorfer (1996, 1999) for the theoretical underpinning of this argument and Lassen (2005) for empirical evidence.

3.4 Potential Alternative Explanations

The differences in voting outcomes may also be explained by considerations other than framing issues. Since the probability for one's own ballot to determine the outcome is virtually nil, "[...] the act of voting is effectively decoupled from the causal consequences of voting for electoral outcomes (Brennan and Hamlin (1998) p.150)."Consequently voters may depart from casting 'sincere' votes and *use ballots strategically* as a communication instrument to signal their preference for or against the endorsing parties, if they believe that they are not pivotal.[15] A related explanation is that due to those voters who are *rationally uninformed* (see Downs (1957)), the disparity between the two approval rates could have been the consequence of random mistakes. We take both of these arguments earnestly and deal with them in Section 5.1.

Moreover, voting simultaneously for two almost identical initiatives is rather unusual. Voters might have been induced to think that the two proposals were indeed distinct. This argument is weakened by the above-mentioned fact that most of the media, political parties and the Swiss government clearly treated the two initiatives as identical, one and the same. A clear signal for this was apparent in the official information booklet provided by the government's unprecedented move to discuss both initiatives in only *one* section. In general, the government information booklet includes the text of the initiatives, each of the initiating committee's main line of reasoning and recommendations from the government in separate sections for each initiative.

A final potential alternate explanation is that the electorate perceived a real disparity between the initiatives, and considered it to be relevant for their decisions: The Green Party's initiative also explicitly allowed for a partial pension. However, a partial pension is also fully compatible with the SACE proposal.

[15] See Brennan and Hamlin (1998), Piketty (2000) or Castanheira (2003) for theoretical models explaining the strategic use of votes as a communication device.

Moreover, a first glance at the VOX data shows that the difference was neither perceived (see Table 1) nor used to justify the discrepancy in voting behavior. In fact 20% responded that they voted differently because one initiative was considered to be good and the other to be bad. Another 20% were not able to justify their diverse votes.

4 Data and Empirical Strategy

Two different data sets varying in the degree of aggregation are used: community and individual level data. While the analysis of individual level data allows for a more detailed investigation of framing effects, the community level data is of better quality and is consequently considered a reference for our results from the individual data.

4.1 Community Level Data

Community level data encompasses detailed, but aggregated information on 2859 Swiss communities. Its main components originate from the 2000 census and include information on the distribution of gender, age, and marital status, as well as the socio-economic composition of the communities (level of education, profession). As foreigners and minors are not participating in the vote, the mentioned distributions are for voting age Swiss citizens only. Information on political choices and preferences are taken from the 1999 national elections. Other relevant variables are parameters referencing the location of communities (urban/rural, distance to center, etc). The community level data is used to explore how much of the difference can be explained by communicative voting or random mistakes made by the electorate. Summary statistics are given in Table 6 in the Appendix.

4.2 Individual Level Data: VOX72 Analysis

The individual level data originates from telephone interviews (VOX) conducted within two weeks after the ballot by the GfS Research Institute.[16] Based on a standardized questionnaire, in total 1024 citizens entitled to vote were interviewed on the telephone. A layered random sampling procedure assured representativeness with respect to regional factors, age and gender. However, the interviews are rather time consuming[17] and therefore cooperation might depend on the interest in politics. Hence variables of involvement in the political process might be biased in the sense that politically active citizens are over-represented (see Bieri et al. (2001); Sidler et al. (2001)). This problem is apparent in the fact that the participation in the two initiatives is approximately 9% points higher in the VOX72 data set. Nonetheless, the individual level data has the advantage of being much richer, and it allows to use proxies for potential mediators of framing effects. Summary statistics and definitions for all the variables mentioned below can be found in Table 4 as well as Table 10 in the Appendix.[18]

4.2.1 Dependent Variables

Three different binary dependent variables are used in the subsequent data analysis. *Vote differently* is a dummy variable, which takes the value of one if the individual voted differently for the two initiatives and zero otherwise. Two different variants of this variable were also: In the benchmark specifications empty voting bills were disregarded. However, empty bills were included in a broader

[16]The GfS has a long tradition in conducting these exit polls and is the major source of political opinion polls. See http://www.gfsbern.ch/e/ for more information.

[17]The average interview took 27 minutes to complete. See the Appendix for more details on the sample procedures and response rates.

[18]Observations from individuals who responded with "no answer" or "don't know" were dropped from the analysis. For the variables *Differently perceived content*, *Content: SACE title* and *Content: Green title* "don't know" answers are still considered as valid observations.

definition of our dependent variable (i.e., if a person votes yes or no for one of the two initiatives and hands in an empty bill for the other initiative, the variable is assigned a value of one).

In order to gain insight as to whether some factors systematically led to a framing effect in a specific direction, two additional variables were constructed in conditional samples. The variable *Vote differently SACE* indicates whether a person voted differently in favor of the SACE initiative. Note that all persons who voted differently in favor of the Green Party's proposal were dropped in our regressions with the former dependent variable. Similarly if a person voted differently in favor of the Green Party's initiative the variable *Vote differently Green* has the value of one and persons who voted differently in the other direction were dropped from the sample.

4.2.2 Identifying Variables

As mentioned in Section 2 the literature has identified three possible mediators of emphasis framing effects: change in *accessibility*, change in *weights or importance given to the certain beliefs* and different *cognitive effort*. We use these insights to identify and attribute the difference to a framing effect.

A proxy for changes in accessibility is constructed using the answers to the following question (under the implicit assumption that the interviewed subjects mention aspects which are at the top of their head):

> *What was the content of the initiative 'in favor of more flexibility in the AVS' ('in favor of a flexible retirement as of the age of 62')?*

The GfS Institute categorized the answers.[19] The categorization is used to test whether the change in perception induced by the different emphasis in the initiatives' titles (female retirement age versus lower retirement age) explains

[19] See Table 12 in the Appendix for the exact categorization

whether citizens cast ballots differently. Therefore, the variable *Differently perceived content* is constructed in a manner so that it indicates the joint satisfaction of two conditions. Firstly, individuals had to perceived the content of the Green initiative to be related to a lower or more flexible retirement age. And secondly, subjects had to associate an opposition to an increase in female retirement age or a lower female retirement age with the SACE initiative. In certain parts of the analysis this variable is split up into two separate dummies (*Content: SACE title* and *Content: Green title*) capturing whether the perception of the content corresponds with the emphasis in the title for each initiative separately. Initially a variable that indicates whether individuals perceived the aspect of flexibility in both initiatives was also considered. However the variable had to be dropped because it perfectly predicted the probability of voting identically on both initiatives. This result is noteworthy because the word flexibility was used in both titles.

The dummy *Difference in importance* indicates if a person considered one of the two initiatives to be more important personally than the other.[20] Hence, this variable serves as a proxy for the change in weight given to the perceived content of the initiatives. Similar to the proxy for accessibility two separate variables indicating the direction of the difference in weight (*Higher importance: SACE* and *Higher importance: Green*) were constructed.

Finally, to examine the explanatory power of the cognitive effort hypothesis put forth by Gonzalez et al. (2005) the dummy variable *Decision easier* was constructed: It captures whether the decision was perceived to be easier for one of the two initiatives.

[20]The personal importance was measured on a scale of 0 (no importance) to 10 (high importance).

4.2.3 Control Variables

The first set of control variables consists of party identification dummies for all major Swiss parties (*SVP, CVP, FDP, SP* and *Green*), identification with a *Clerk Association* (which is covered by SACE) and the political polarization on the left-right dimension (*Deviation pol. Center* measured as the absolute deviation from the center of a 0 (left) to 10 (right) scale for the political position). If voters used recommendations as a mental shortcut for making their decisions, one would expect all coefficients of the party and interest group dummies to have a negative sign. Similarly people who are politically more polarized should be more likely to use the recommendations and therefore less likely to vote differently. Alternatively, these variables also control for potential communicative voting strategies. In that case their signs would be expected to be positive.

Another set of variables is used to control individual differences concerning political awareness and interest. The variable *Decision at the beginning* is a proxy for the existence of a strong a priori opinion.[21] *Ballot experience* is a variable counting the number of ballots (out of ten) an individual usually attends and proxies for experience if one simultaneously controls for the *Interest in politics* (from 0 for not interested at all to 3 for very interested). As interpersonal communication has been shown to affect framing effects (See Druckman and Nelson (2003)) we control for the frequency of involvement in political discussions (0 never to 2 often) with the variable *Discuss about politics*.

The four major sources of information for the ballots and elections (*Newspaper, TV, Government Information* booklet and *Radio*) are included as controls so as to capture any asymmetric coverage in the different media types.

To take into account the fact that we use survey data and people might incompletely recall the information they are asked to provide (see Belli et al. (1999))

[21] Druckman and Nelson (2003) demonstrate that individuals who hold strong a priori opinions are less susceptible to framing effects.

the Dummy *Remembered only one initiative* was included and the robustness of our results was checked for. The variable is based on an open question at the beginning of the survey where the subjects are asked to name the proposals that were covered in the last election. It indicates whether recall abilities for the two initiatives were asymmetric.

And finally *Age*, *Male*, *Education*,[22] *Own apartment* (as a proxy for wealth) and a dummy for the French or Italian language region (*Latin*) were used as socioeconomic controls.

5 Results

5.1 Community Level Data

5.1.1 Is the Difference Due to Random Mistakes?

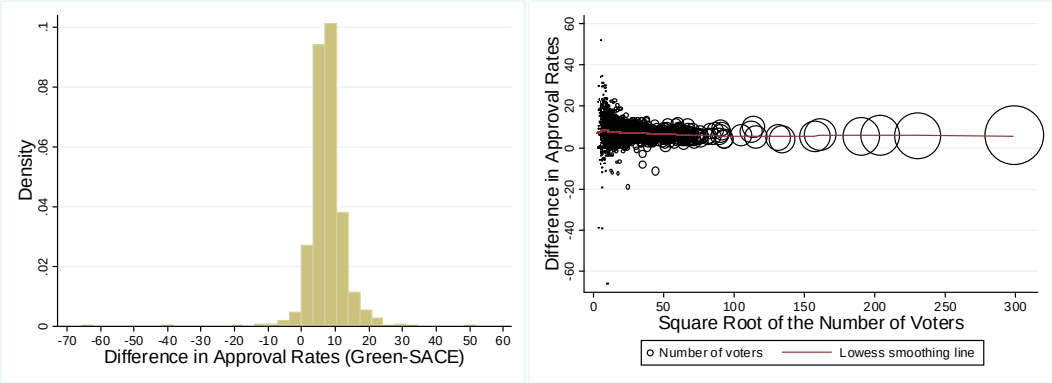
If the hypothesis "observed differences in approval rates are mainly the result of random mistakes" were true, then from asymptotic theory it could be expected that the difference between the two approval rates would decline with the square root of the sample size and converge to zero. In that in our data set the number of participating voters ranges from 6 to 88940 this prediction can be tested straight forwardly by regressing the square root of participating voters on the absolute difference in approval rates.

The graph on the left side of Figure 2 depicts the histogram of differences in approval rates of all 2884 communities. This difference in approval between the Green Party's and SACE's initiative is statistically significant on any conventional significance levels (two sided Wilcoxon signed-rank test: z=45.079 $p > z$ =0.0000) and clearly biased towards the Green proposal. Hence this already suggests that

[22] Educational attainment is an ordinal scaled variable with values ranging from one (mandatory schooling) to six (university degree). Using dummy variables for each level of educational attainment separately as an alternative to *Education* does not affect the results.

the difference is very unlikely to be the result of random voting mistakes.

Figure 2: Is the Difference Due to Random Mistakes?



Note: The size of the bubbles in the graph on the right side represents the number of voters in the corresponding community. The lowess smoothing line is a nonparametric locally weighted regression curve

However a sounder test for the random mistakes explanation is provided by the regression results[23] in Table 2. The coefficient for the square root of participating voters is statistically highly significant and has the expected sign. Nevertheless, the magnitude of the coefficient is economically insignificant and the model can only explain 4% of the variation in the data as indicated by the R-squared.

This point becomes more apparent with the scatter plot on the right side of Figure 2, where the differences in approval rates are plotted against the square root of voters. The graph illustrates that the very small communities, where a substantial amount of noise is observable, are the drivers behind the regression coefficient's significance and its negative sign. Even more important is that the difference does not converge to zero — as we would expect if there wasn't any systematic bias — but to a difference of around six percentage points. The

[23]The number of voters in a community are used as weights in the regression to account for the right skewed distribution of community sizes.

Table 2: Random Mistakes and Convergence

	Abs. Difference in Approval	
	Coeff.	Rob.Se
$\sqrt{Number\ \ of\ \ voters}$	-0.007***	(0.002)
Constant	7.180***	(0.112)
Obs.	2884	
F	13.946	
Prob> F	0.000	
R2	0.040	

Note: Weighted (by the number of voters) OLS regression with robust standard errors. The number of voters in a community are used as weights in the regression to account for the right skewed distribution of community sizes. Significance levels are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

hypothesis that the difference is due to unsystematic voting mistakes must be decisively rejected.

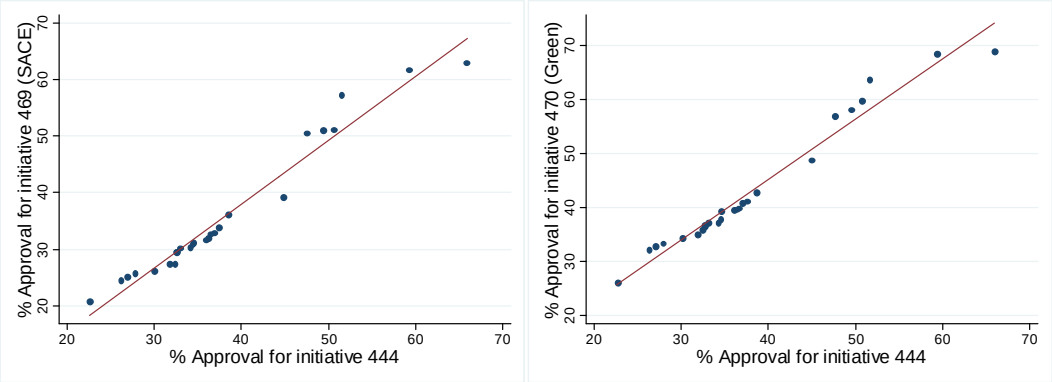
5.1.2 Is the Difference Due to Rational Communicative Voting?

According to the theory of communicative or expressive voting, the electorate weighs the cost of not voting sincerely against the benefits they receive from signaling their preferences. The cost of not voting 'sincerely' decreases with the probability of not being pivotal. Hence, the less the constituency believes that their vote is pivotal the more they deviate from voting sincerely and use the ballot to express themselves.

Recall that an initiative is only approved if it obtains the overall majority of votes *and* is accepted by the majority of cantons. We take advantage of this institutional feature to test the prediction that communities located in cantons where the results of the ballot can be expected to be tight, should exhibit a lower amount of communicative voting. As a consequence, the absolute difference in

approval rates in cantons in which a tighter result is anticipated should be lower. The believed tightness of the two proposals on a cantonal level is reasonably approximated by the outcome of a similar initiative, mentioned above, held in September 1998. Recall that this initiative (444) was endorsed by the Swiss Association of Labor Unions and also demanded a reduction in the retirement age for men and women as a first reaction to the 10th AVS Revision in 1995. Figure 3 demonstrates that it was perfectly rational for voters to use the outcome of Initiative 444 as a basis for forming their beliefs, since its correlation with both the SACE and Green initiatives is over 98%.

Figure 3: Cantonal Approval for the Initiatives 444, SACE and Green



Note: Cantonal approval rates for Initiative 444 are plotted against the approval rates for the SACE and Green initiatives.

The absolute distance between Initiative 444's cantonal approval rate from the 50% mark (variable: *Distance pivotal*) is thus used as a proxy for anticipated tightness of the result. To test rational communicative voting behavior, we regress the absolute difference in approval rates on this measure using political preferences and their interactions with the expected tightness as controls.[24] According to the theory, the absolute difference between the two proposals should be larger

[24]The regressors from different levels of aggregation (cantons and communities) are combined, and therefore it is essential to compute robust standard errors and allow for potential correlation

(smaller) in communities, which are located in cantons where the probability of being pivotal is lower (higher).

However, the coefficient for the *Distance pivotal* variable in the first column of Table 5 does not support this prediction. For communities in cantons where the approval could reasonably be expected to be close to the 50% mark, the absolute difference between the two approval rates is irrelevant or slightly higher (albeit only at a 10% level of significance).[25]

The second column of Table 5 reports the potential interaction effects between the support for the different political parties and the expected tightness. With the exception of the coefficient for the interaction between the percentage of Green Party supporters and expected tightness, none of the interaction effect coefficients are positive or significant. These results are robust to the inclusion of a larger set of socioeconomic control variables as reported in columns three and four of Table 5. Therefore, the aggregated data does not support the argument that the difference is due to communicative voting. Or more precisely, if the electorate voted strategically instead of sincerely, they either did not vote in a manner that would have been consistent with their beliefs or their beliefs were not formed rationally.[26]

The community level data provides, if any, only meager support for the two alternative explanations for the difference in approval rates. In the subsequent section results for the more detailed individual level data are presented and dis-

of the error terms within each canton. Moulton (1990) demonstrated that standard errors are likely to be biased downwards if clustering is ignored.

[25]In an alternative model specification of the approval rates for Initiative 444 and their corresponding quadratic term were used as explanatory variables. The estimation yields the same results: the relationship is hump-shaped instead of the theoretically expected U-shape.

[26]Tyran (2004) tests the theory of expressive voting in a lab experiment by explicitly eliciting beliefs. His evidence is also inconsistent with the low cost theory of expressive voting since the subjects tried to conform with the others and voted less instrumentally the more they thought others would also do so.

cussed.

5.2 Individual Level Data

Using individual questionnaire data, the aim of this section is the potential identification and quantification of framing effects. It proceeds as follows: First, non-parametric tests reveal whether our proxies for the mediators of framing effects explain to what extent and in which direction citizens cast different ballots. Second, multivariate probit models are estimated to demonstrate the robustness of the results to the inclusion of an extensive set of control variables. Third, the magnitude and direction of the framing effect is analyzed. And finally, the role of party preferences, political awareness and socioeconomic background — thus potential alternative explanations of different voting behavior — are examined.

5.2.1 Mediators of Emphasis Framing Effects

Table 6 reports the impact of the identifying variables — the proxies for the three mediator of emphasis framing effects — on the probability to vote differently. This probability increases by 11,9% points (or respectively 18% if empty bills are included in the sample) for those persons who attributed a higher importance to one of the two initiatives. Similarly, a voter with different perceptions concerning the content of each initiative (depending on the emphasis in the initiatives' titles) was 20% (respectively 15%) points more likely to vote differently. Both effects are statistically highly significant.

The direction of the difference in importance is systematically related to the direction of the discrepancy between the cast ballots: Voters who perceived the Green initiative more important were more likely to vote differently in favor of the Green initiative, and vice versa for the SACE initiative. If the aspect of female retirement age was more accessible for the SACE initiative (variable *Content: SACE title*) the probability to vote differently increased by nearly 10% points.

The effect is mainly driven by the increased probability to vote differently in favor of the Green initiative. Hence, voters with a preference for lower retirement age in general were less likely to approve the SACE initiative due to the emphasis of female retirement age in its title.

To sum up, the results from these unconditional comparisons provide broad support for both causes of emphasis framing effects: change in accessibility and belief importance. Differences in cognitive effort as the third mediator have only a significant effect on the probability to vote differently if empty bills are included. This suggests that when voters were able to make up their mind easily for one of the two initiatives, but not for the other, they were more likely to abstain from only one initiative.

Using multivariate probit models, Table 7 reconfirms the previously discussed results and demonstrates that changes in accessibility and importance significantly increase the probability to vote differently.

However, the cognitive effort hypothesis is not supported by the estimation results. Notably the results are robust to the inclusion of all different set of control variables. Since neither incomplete memory recall (*Remembered only one initiative*) nor the type of media consumed[27] help explain whether voters cast ballots differently, those variables are not included in the subsequent analysis.[28]

To gauge the magnitude of the impact due to changes in accessibility and importance, marginal effects (at the means of the other variables) were computed and reported for our benchmark model in Table 8. The average voter was almost 10% points more likely to vote differently if a higher importance was given to one of the two initiatives. Moreover, when the perception of the content changed according to the emphasis in the initiative's title the susceptibility to cast different ballots increased substantially by 25% points. These results are robust to the inclusion of empty bills (see second column in Table 8).

[27] A Wald test for joint insignificance of the four media dummies yields a p-value of 0.5063.

[28] Both categories of controls also remain insignificant if empty bills are included in the sample.

The conditional samples also allow to investigate to what extent the identifying variables are able to predict in which direction the votes diverged.[29] The results are reported in the first two columns of Table 9. Citizens who voted differently consistently approved the initiative they thought was of more importance. If a higher importance was attributed to the SACE initiative voters were 12% points more likely to cast different votes that are in favor of SACE's proposal. And the opposite holds true if a voter assigned more weight to the Green's initiative. Secondly, when aspects of female retirement were more accessible for the SACE proposal, voters were more likely (by 16% points) to vote differently in favor of the Green Party's initiative. Hence, by only emphasizing female retirement age in the initiative's title the SACE lost some of its potential support. In contrast, if the Green's initiative was associated with lower or more flexible retirement, the probability to cast a ballot differently in favor of the SACE initiative fell - however only marginally by 3% points. As the two last columns in Table 9 demonstrate, the estimation results from the same models with the broader definition (i.e. including empty bills) for the dependent variables are more or less the same.

The results discussed so far support both explanations of framing effects: the "top of the head" or accessibility model (Zaller and Feldman (1992) or Haider-Markel and Joslyn (2001)) and the model of belief importance proposed by Nelson and Oxley (1999) and Nelson et al. (1997*a*). Hence, the difference in voting outcome can be attributed to an emphasis framing effect.

[29]Since the dependent variable *Vote differently* is now split up into two separate dependent variables (*Vote differently SACE* and *Vote differently Green*) the frequency of positive outcomes for the dependent variables varies between 4.2% and 6.8%. The problem of potential underprediction of rare positive outcomes was addressed by estimating a logit models and applying the correction proposed by King and Zeng (2001) - using the relogit command in STATA. The results are qualitatively robust and available from the authors upon request.

5.2.2 Party Preferences, Political Awareness and Socioeconomic Background

Apart from framing effects, party preferences, political awareness and socioeconomic background may also play important roles. Negative coefficients for all of the political party dummies can be expected if voters follow party recommendations. However as reported in Table 8 supporters of the right-winged conservative party (SVP) and clerk association sympathizers are more likely to vote differently. Using the broader definition for the dependent variable, SVP supporters have a 20% points higher probability to vote differently (statistical significance: $p<0.01$). This result is entirely driven by the increased probability of SVP supporters to vote differently in favor of the SACE initiative as is clear from Table 9. Since the Green Party is clearly more left-winged than the SACE, right-winged conservative voters with a preference for a lower retirement age were reluctant to approve the Green Party's proposal.

The results suggest that part of the difference may be due to protest (i.e., communicative) voting. However, as demonstrated with the aggregated data this behavior is not rationally depending on the beliefs concerning one's pivotal role as suggested by the existing theoretical literature. Additional evidence for this kind of communicative voting can be seen in the behavior of Green Party supporters in Table 9. Voters who identified themselves with the Green Party were 15% to 20% more likely to cast divergent ballots in favor of the Green Party (depending on the definition of the dependent variable).[30] However, in terms of significance levels the results suggest that communicative voting played a rather minor role compared with the mediators of framing effects.

The analysis provides very strong support in favor of the hypothesis that the

[30] Rather confusing is the result that for voters who identify themselves with clerk associations (which is covered by SACE) are more likely to vote in favor of the Green Party instead of the SACE.

used mediators of framing effects have more explanatory power than the party identification variables. This can be shown using two different probit regressions, each consisting of the same specification as in Table 8 except that alternatively, either the framing variables or the party identification dummies were excluded.[31]: The difference between the Bayesian information criterion (BIC) in the two models, BIC=276.329 form the Framing Model versus BIC=297.50 for the Communicative Voting Model, implies a much better fit for the former.[32]

Political awareness plays an important role for the magnitude of the framing effect: individuals who had made their decisions earlier had a lower probability of voting differently (see Tables 7, 8, and 9). This is consistent with the experimental results of Druckman and Nelson (2003), which suggest that people who have strong a priori opinions are less susceptible to framing effects. Similarly, as reported in Table 9, more experience and higher interest in politics significantly reduced the probability to cast different votes in favor of the Green proposal.[33]

Among the *socioeconomic controls* the very robust positive effect from age on the likelihood of voting differently stands out.[34] Nonetheless, it would be too presumptuous to conclude from these results that older people are more prone to framing effects, since this effect is very likely to be specific to the ballot's topical focus on the retirement age. Moreover, there is a very robust negative effect for

[31]The sample size was kept constant.

[32]A lower BIC implies a better fit. According to the guidelines Raftery (1996) a difference in the BIC which is greater than ten can be considered very strong evidence in favor of the model with the lower BIC. The difference in the BIC is lower but still well above 10 if we include empty bills.

[33]The counter-intuitive positive effect of political interest on the probability to vote differently in favor of the SACE is only significant on a 10% level and not very robust to alternative specification.

[34]Kim et al. (2005) also find a larger framing effect among older adults and argue that this effect is due to the heavier reliance of older people on decision heuristics. In contrast, Rönnlund et al. (2005) find no significant difference in susceptibility to framing effects between younger and older adults.

the *Own apartment* dummy on the probability to cast divergent votes, suggesting that some individual differences that are correlated with wealth have not been captured by the other variables in our models. Finally, men are less likely to vote differently in favor of the SACE's proposal (See Table 9). Although this coincides with previous experimental results suggesting that men are less prone to framing effects (e.g. Fagley and Miller (1997, 1990)) it is presumably due to SACE's emphasis on the aspect of female retirement in the initiative's title.

6 Concluding Remarks

An extensive amount of evidence from lab experiments and hypothetical questionnaire studies suggests that framing effects can play an important role in politics. Recently, various experimental studies demonstrated that framing effects may in fact be limited. Nevertheless, to what extent this phenomenon generalizes to real world political decision making is largely unexplored. Based on a unique natural experiment, in which an identical electorate was guaranteed, this study makes a first step and provides evidence on the importance of emphasis framing effects in ballots: The average difference in support rates of 6.6 percentage points for two virtually identical initiatives can be largely attributed to the different framing of their titles. The wording of political issues is thus obviously important.

It is shown that different frames affect both the accessibility of attributes and the weight given to the perceived content. The results thus complement the theoretical arguments and empirical evidence provided by Chong (1993), Zaller and Feldman (1992) or Nelson et al. (1997*b*). Moreover, individuals seem to vary systematically in propensity to vote differently. Holding prior opinions, experience, interest in politics, wealth and age had a significant influence on the susceptibility to emphasis framing effects. The data also indicate that part of the disparity in approval rates is due to protest voting. Nonetheless, the mediators of framing effects can be shown to have more explanatory power than the party

identification variables that capture protest voting.

Furthermore this paper contributes to the growing literature on the media bias in politics. Media frequently canvass politics with a bias. They do so by putting different emphasis on certain issues and by selecting what will be printed (see Groseclose and Milyo (2005) or Gentzkow and Shapiro (2006)). Our results indicated that the way media frame political issues might have a substantial influence on democratic outcomes.[35]

A final remark refers to the generalization of our results. We cannot exclude that there are interactions between the observed framing effect with the specific location, timing and topic of this study. Nevertheless, we believe that our setting provides a rather conservative test due to the following two reasons. First, pension reforms are a hotly debated topic and the Swiss public had already voted on several related bills before. Hence, the electorate should be rather experienced. Second, some scholars propagate that voters are better informed and make less mistakes in *direct* democracies (see Matsusaka (2005) or Benz and Stutzer (2004)).

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Appendix

Table 3: Descriptive Statistics: Community Level Data

Variable	**Mean**	**Std. Dev.**	**Min**	**Max**	**Obs**
Difference 470-469	6.609	2.763	-65.8	51.9	2884
Absolute Difference 470-469	6.697	2.540	0	65.8	2884
Approval Initiative 469 (SACE)	39.344	12.113	0	90.5	2884
Approval Initiative 470 (Green)	45.953	11.910	0	100	2884
Approval Initiative 444	42.161	10.274	3.7	93.3	2875
Participation 469	41.684	6.785	13.8	90	2884
Participation 470	41.737	6.794	14.7	90	2884
Participation 444	51.685	7.540	16.2	92.5	2875
Distance pivotal	12.511	5.823	0.553	27.367	2884
FDP (right liberal)	19.669	10.641	0	96.8	2881
SP (social democrat)	22.775	10.094	0	94.4	2881
SVP (right conservative)	22.107	13.268	0	86.4	2881
CVP (christian democrat)	14.757	15.039	0	92.4	2881
Green	5.378	3.863	0	40.7	2881
Log (Taxable income/1000)	4.020	0.200	2.541	5.561	2873
City (= 1)	0.716	0.451	0	1	2876
Distance to city (km)	28.96	23.44	1.83	202.01	2875
Apprenticeship	37.003	4.841	0.395	53.372	2876
Highschool	15.248	3.812	0	29.508	2876
University	5.910	4.014	0	24.840	2876
French speakers	20.813	37.182	0	100	2876
Italian speakers	4.541	17.732	0	98.46	2876

Note: Mean and standard deviation are weighted by the number of potential voters (i.e., Swiss citizens aged 18 and older) in a community. Unless otherwise indicated all numbers are given in percentages of potential voters in a community or percentages of cast votes (for results of initiatives and political parties), respectively. Sources: Federal Office for Statistics; Census 2000, community level voting results, federal elections 1999.

Table 4: Descriptive Statistics: Individual Level Data

Variable	**Mean**	**Std. Dev.**	**Min**	**Max**	**Obs**
Approve SACE	0.442	0.497	0	1	498
Approve Green	0.468	0.499	0	1	498
Vote differently	0.103	0.304	0	1	478
Vote differently (incl. empty bills)	0.131	0.338	0	1	511
Vote differently SACE	0.042	0.200	0	1	478
Vote differently SACE (incl. empty bills)	0.063	0.243	0	1	511
Vote differently Green	0.061	0.239	0	1	478
Vote differently Green (incl. empty bills)	0.068	0.253	0	1	511
Difference in importance	0.149	0.357	0	1	570
Higher importance SACE	0.053	0.223	0	1	570
Higher importance Green	0.096	0.296	0	1	570
Differently perceived content	0.061	0.239	0	1	510
Content: Green title	0.545	0.498	0	1	510
Content: SACE title	0.102	0.303	0	1	510
Decision easier	0.033	0.179	0	1	546
Age	52.913	16.367	18	84	577
Male	0.522	0.500	0	1	577
Education	2.723	1.505	1	6	573
Own Appartment	0.482	0.500	0	1	573
Latin	0.270	0.445	0	1	577
SVP (right conservative)	0.114	0.318	0	1	571
CVP (christian democrat)	0.054	0.227	0	1	571
FDP (right liberal)	0.121	0.326	0	1	571
SP (social democrat)	0.149	0.356	0	1	571
Green	0.019	0.138	0	1	571
Clerk Association	0.284	0.451	0	1	563
Deviation pol. Center	1.111	1.301	0	5	504
Decision at beginning	0.317	0.466	0	1	546
Interest in politics	1.997	0.747	0	3	574
Ballot experience	8.767	1.935	0	10	567
Discuss about politics	1.418	0.575	0	2	574
Print: Newspaper	0.906	0.292	0	1	574
Print: Government information	0.836	0.370	0	1	574
Audio: Radio	0.650	0.477	0	1	574
Audio: TV	0.776	0.417	0	1	576
Remember only one initiative	0.210	0.407	0	1	577

Note: Sample contains only observations from individuals who participated at the ballot on the 26. of November 2000

Table 5: Communicative Voting and the Difference in Approval Rates

	Diff. in Approval I		**Diff. in Approval II**		**Diff. in Approval III**		**Diff. in Approval IV**	
	Coeff	Rob.Se	Coeff	Rob.Se	Coeff	Rob.Se	Coeff	Rob.Se
Distance pivotal	-0.054+	(0.029)	-0.022	(0.082)	-0.068+	(0.033)	-0.065	(0.059)
FDP (right liberal)	0.000	(0.017)	0.003	(0.029)	0.011	(0.008)	0.028+	(0.016)
SP (social democrat)	-0.006	(0.015)	0.006	(0.031)	-0.004	(0.009)	-0.015	(0.028)
SVP (right conservative)	0.034	(0.024)	0.049	(0.041)	0.012	(0.011)	0.008	(0.028)
Green party	-0.149**	(0.046)	-0.160*	(0.076)	-0.118**	(0.036)	-0.128**	(0.042)
SVP x Distance pivotal			-0.001	(0.002)			0.000	(0.002)
SP x Distance pivotal			-0.001	(0.002)			0.001	(0.002)
FDP x Distance pivotal			-0.000	(0.002)			-0.001	(0.001)
Green x Distance pivotal			0.001	(0.005)			0.001	(0.004)
Participation 469					0.025	(0.017)	0.025	(0.017)
Taxable income					-1.310+	(0.697)	-1.313+	(0.677)
City					-0.075	(0.198)	-0.051	(0.164)
Distance to city					0.013	(0.046)	0.013	(0.045)
Apprenticeship					-0.008	(0.028)	-0.011	(0.027)
Highschool					-0.088+	(0.044)	-0.088+	(0.045)
University					-0.125+	(0.066)	-0.128*	(0.062)
French					-0.002	(0.006)	-0.003	(0.006)
Italian					-0.034***	(0.004)	-0.035***	(0.004)
Constant	7.558***	(1.009)	7.161***	(1.389)	14.479***	(2.911)	14.649***	(2.902)
Obs.	2874		2874		2862		2862	
R2 adj.	0.084		0.084		0.213		0.213	
F	5.337		5.388		83.153		275.205	
Prob > F	0.002		0.000		0.000		0.000	

Note: Weighted (number of participating voters) OLS estimates with clustered standard errors. The number of voters in a community are used as weights in the regression to account for the right skewed distribution of community sizes. Significance levels are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 6: Mediators of Framing Effects and the Probability to Vote Differently

		Vote diff.	**Vote diff.** *empty bills*	**Vote diff. SACE**	**Vote diff. SACE** *empty bills*	**Vote diff. Green**	**Vote diff. Green** *empty bills*
Difference in importance	no	0.0876	0.1057	0.0389	0.0529	0.0487	0.0529
	yes	0.2063	0.2857	0.0635	0.1143	0.1429	0.1714
	yes-no	0.1188**	0.18***	0.0246	0.0614*	0.0942**	0.1186***
Higher importance SACE	no	0.1033	0.1263	0.0396	0.0538	0.0637	0.0725
	yes	0.1053	0.2273	0.1053	0.2273	0.0000	0.0000
	yes-no	0.0020	0.1010	0.0657	0.1734***	-0.0637	-0.0725
Higher importance Green	no	0.0884	0.1116	0.0419	0.0613	0.0465	0.0503
	yes	0.2500	0.3125	0.0455	0.0625	0.2045	0.2500
	yes-no	0.1616***	0.2009***	0.0036	0.0012	0.158***	0.1997***
Differently perceived content	no	0.0850	0.1148	0.0375	0.0562	0.0475	0.0585
	yes	0.2857	0.2667	0.1071	0.1000	0.1786	0.1667
	yes-no	0.2007***	0.1519*	0.0696+	0.0438	0.1311**	0.1081*
Content: SACE title	no	0.0947	0.1276	0.0413	0.0638	0.0534	0.0638
	yes	0.1915	0.1765	0.0638	0.0588	0.1277	0.1176
	yes-no	0.0968*	0.0489	0.0226	-0.0050	0.0743*	0.0539
Content: Green title	no	0.1198	0.1415	0.0573	0.0780	0.0625	0.0634
	yes	0.0788	0.1089	0.0290	0.0428	0.0498	0.0661
	yes-no	-0.0410	-0.0325	-0.0282	-0.0352	-0.0127	0.0027
Decision easier	no	0.1044	0.1284	0.0422	0.0611	0.0622	0.0674
	yes	0.1667	0.3333	0.0833	0.1333	0.0833	0.2000
	yes-no	0.0622	0.2049*	0.0411	0.0723	0.0211	0.1326*

Note: Significance levels (two sided χ^2 test) are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 7: Multivariate Probit Models

	Vote differently I *empty bills excl.*		**Vote differently II** *empty bills excl.*		**Vote differently III** *empty bills excl.*		**Vote differently IV** *empty bills excl.*		**Vote differently V** *empty bills excl.*	
	Coeff.	Rob.se	Coeff.	Rob.se	Coeff.	Rob.se	Coeff.	Rob.se	Coeff.	Rob.se
Difference in importance	0.596**	(0.229)	0.583*	(0.240)	0.615**	(0.231)	0.586*	(0.235)	0.597**	(0.229)
Differently perceived content	0.700**	(0.271)	0.981***	(0.297)	0.753**	(0.287)	0.689*	(0.277)	0.709**	(0.272)
Decision easier	0.089	(0.445))	-0.325	(0.580)	0.117	(0.480)	-0.003	(0.448)	0.092	(0.441)
Age	0.012*	(0.006)	0.015*	(0.007)	0.016**	(0.006)	0.013*	(0.006)	0.012*	(0.006)
Male	-0.267	(0.190)	-0.324	(0.207)	-0.249	(0.202)	-0.285	(0.190)	-0.263	(0.189)
Education	0.067	(0.059)	0.059	(0.070)	0.108	(0.067)	0.060	(0.059)	0.063	(0.058)
Own apartment	-0.414*	(0.181)	-0.474*	(0.209)	-0.449*	(0.190)	-0.394*	(0.175)	-0.419*	(0.180)
Latin	-0.232	(0.212)	-0.295	(0.268)	-0.253	(0.217)	-0.141	(0.219)	-0.208	(0.221)
SVP (right conservative)			0.424	(0.335)						
CVP (christian democrat)			-0.539	(0.417)						
FDP (right liberal)			-0.658+	(0.357)						
SP (social democrat)			-0.220	(0.300)						
Green			0.742	(0.776)						
Clerk Association			0.373+	(0.227)						
Deviation pol. center			-0.167+	(0.093)						
Decision at beginning					-0.421*	(0.203)				
Interest in politics					-0.198	(0.171)				
Ballot experience					-0.066	(0.052)				
Discuss about Politics					0.161	(0.194)				
Print: Newspaper							0.450	(0.476)		
Print: Government Information							0.112	(0.277)		
Audio: Radio							-0.223	(0.202)		
Audio: TV							0.082	(0.229)		
Remember only one initiatives									-0.164	(0.250)
Constant	-1.894***	(0.409)	-1.880***	(0.490)	-1.365*	(0.574)	-2.398***	(0.610)	-1.857***	(0.407)
Obs.	410		367		389		408		410	
χ^2	23.599		44.947		32.246		25.650		24.128	
Prob> χ^2	0.003		0.000		0.001		0.012		0.004	
Pseudo R2	0.101		0.169		0.137		0.112		0.103	

Note: Probit estimates for the probability to vote differently on the two proposals. Robust standard errors are displayed in parentheses. Significance levels are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 8: Benchmark Probit Models with Marginal Effects

	Vote differently VI *empty bills excl.*			**Vote differently VII** *empty bills incl.*		
	Coeff. and Rob.se		MargFX	Coeff. and Rob.se		MargFX
Difference in importance	0.559*	(0.251)	0.087	0.500*	(0.243)	0.089
Differently perceived content	1.150***	(0.312)	0.259	1.027***	(0.298)	0.249
Decision easier	-0.328	(0.567)	-0.029	0.507	(0.528)	0.098
Age	0.020**	(0.007)	0.002	0.021**	(0.007)	0.003
Male	-0.326	(0.216)	-0.039	-0.313	(0.200)	-0.045
Education	0.110	(0.076)	0.012	0.109	(0.071)	0.015
Own apartment	-0.528*	(0.224)	-0.063	-0.536**	(0.206)	-0.077
Latin	-0.345	(0.272)	-0.035	-0.232	(0.245)	-0.030
SVP (right conservative)	0.620+	(0.351)	0.102	0.915**	(0.316)	0.200
CVP (christian democrat)	-0.482	(0.410)	-0.039	-0.092	(0.393)	-0.012
FDP (right liberal)	-0.444	(0.353)	-0.040	-0.533	(0.371)	-0.057
SP (social democrat)	-0.141	(0.311)	-0.015	0.031	(0.295)	0.004
Green	0.756	(0.786)	0.146	0.724	(0.802)	0.159
Clerk Association	0.452+	(0.232)	0.058	0.424+	(0.221)	0.066
Deviation pol. center	-0.151	(0.096)	-0.017	-0.174*	(0.088)	-0.024
Decision at beginning	-0.486*	(0.215)	-0.049	-0.491*	(0.218)	-0.061
Interest in politics	-0.318+	(0.179)	-0.036	-0.224	(0.167)	-0.031
Ballot experience	-0.066	(0.057)	-0.007	-0.109*	(0.052)	-0.015
Discuss about Politics	0.169	(0.212)	0.019	0.061	(0.194)	0.008
Constant	-1.254*	(0.639)		-0.963+	(0.551)	
Obs.	353			368		
Prob. of pos. outcome	0.057			0.074		
χ^2	51.812			56.680		
Prob> χ^2	0.000			0.000		
Pseudo R2	0.212			0.220		

Note: The table reports Probit coefficient estimates robust standard errors (in parentheses) and marginal effects (computed at the mean) for the probability to vote differently on the two proposals. Significance levels are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 9: Direction of the Framing Effect

	Vote differently in favor of SACE *empty bills excl.*			**Vote differently in favor of Green** *empty bills excl.*			**Vote differently in favor of SACE** *empty bills incl.*			**Vote differently in favor of Green** *empty bills incl.*		
	Coeff. and Rob.se		MargFX	Coeff. and Rob.se		MargFX	Coeff. and Rob.se		MargFX	Coeff. and Rob.se		MargFX
Higher importance: SACE	0.988*	(0.475)	0.124	*dropped*			0.952*	(0.397)	0.147	*dropped*		
Higher importance: Green	0.315	(0.424)	0.021	0.918**	(0.303)	0.061	0.080	(0.457)	0.006	1.033***	(0.297)	0.094
Content: SACE title	0.434	(0.388)	0.033	1.473***	(0.387)	0.160	0.359	(0.371)	0.035	1.268***	(0.363)	0.141
Content: Green title	-0.518*	(0.244)	-0.030	-0.284	(0.266)	-0.009	-0.464*	(0.219)	-0.037	-0.007	(0.255)	-0.000
Decision easier	0.314	(0.617)	0.022	*dropped*			1.175+	(0.604)	0.213	-0.487	(0.631)	-0.011
Age	0.012	(0.009)	0.001	0.029**	(0.011)	0.001	0.014+	(0.008)	0.001	0.032**	(0.010)	0.001
Male	-0.686*	(0.285)	-0.042	-0.045	(0.293)	-0.001	-0.447+	(0.250)	-0.036	-0.303	(0.264)	-0.012
Education	0.122	(0.094)	0.006	0.098	(0.098)	0.003	0.107	(0.086)	0.008	0.066	(0.090)	0.002
Own apartment	-0.530+	(0.285)	-0.030	-0.597+	(0.317)	-0.019	-0.482+	(0.259)	-0.038	-0.679*	(0.291)	-0.029
Latin	-0.365	(0.351)	-0.016	-0.287	(0.349)	-0.007	-0.246	(0.310)	-0.016	-0.214	(0.319)	-0.007
SVP (right conservative)	0.954*	(0.393)	0.105	0.480	(0.569)	0.021	1.339***	(0.341)	0.232	0.618	(0.476)	0.040
SP (social democrat)	0.158	(0.326)	0.009	-0.186	(0.469)	-0.005	0.341	(0.306)	0.030	-0.244	(0.466)	-0.008
CVP (christian democrat)		*dropped*		0.235	(0.467)	0.008		*dropped*		0.574	(0.444)	0.037
FDP (right liberal)		*dropped*		-0.046	(0.381)	-0.001		*dropped*		-0.163	(0.392)	-0.005
Green		*dropped*		1.358+	(0.786)	0.158		*dropped*		1.418+	(0.796)	0.205
Clerk Association	0.135	(0.285)	0.007	0.633*	(0.321)	0.024	0.247	(0.263)	0.020	0.536+	(0.300)	0.025
Deviation pol. center	-0.222*	(0.108)	-0.012	-0.020	(0.143)	-0.001	-0.192*	(0.091)	-0.014	-0.071	(0.129)	-0.003
Decision at beginning	-0.510+	(0.268)	-0.023	-0.230	(0.291)	-0.006	-0.503*	(0.253)	-0.032	-0.432	(0.284)	-0.014
Interest in politics	0.316+	(0.191)	0.017	-0.915***	(0.242)	-0.026	0.220	(0.194)	0.016	-0.728***	(0.212)	-0.027
Ballot experience	0.046	(0.088)	0.002	-0.158*	(0.070)	-0.004	-0.025	(0.069)	-0.002	-0.197**	(0.069)	-0.007
Discuss about Politics	-0.114	(0.253)	-0.006	0.120	(0.328)	0.003	-0.150	(0.243)	-0.011	0.071	(0.297)	0.003
Constant	-2.757**	(0.853)		-0.648	(0.796)		-2.094**	(0.698)		-0.453	(0.700)	
Obs.		335			335			346			344	
Prob. of pos. outcome		0.022			0.011			0.033			0.015	
χ^2		45.826			53.032			50.962			55.140	
Prob> χ^2		0.000			0.000			0.000			0.000	
Pseudo R2		0.223			0.335			0.233			0.321	

Note: Conditional Probit estimates and marginal effects (computed at the means of the covariates) for the probability to vote differently in favor of SACE or Green. Robust standard errors are displayed in parentheses. Some of the variables (indicated by *dropped*) could not be included in all of the models due to perfect or nearly perfect multicollinearity with the dependent variable in the smaller sample size. Significance levels are denoted as follows:+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 10: Question wording and Coding (Translated from German to English

Variable	**Definition**	**Question wording [Possible answers in brackets]**
Participate	1=yes; 0=no	Generally speaking, in an election such as this one, more than half of the eligible voters do not participate. After all, voters have other activities on their agendas in addition to politics. What about you, did you participate in the election on the 26th of November? [yes,no, d.k., n.a.]
Approve SACE	1=accepted; 0=else	How did you vote, what was your choice for the initiative "in favor of more flexibility in the AVS"? [accepted, reject, empty, d.k., n.a.]
Approve Green	1=accepted; 0=else	How did you vote for the initiative "in favor of flexible retirement starting at age 62"? [accepted, reject, empty, d.k., n.a.]
Vote differently	1=*Approve SACE* has a different value than *Approve Green*; 0=else	
Vote differently (including empty bills)	same as *Vote differently* but empty bills are included	
Vote differently SACE	1=*Approve SACE*=1 and *Approve Green*=0; 0=else	
Vote differently SACE (including empty bills)	same as *Vote differently SACE* but empty bills are included	
Vote differently Green	1=*Approve Green*=1 and *Approve SACE*=0; 0=else	
Vote differently Green (including empty bills)	same as *Vote differently Green* but empty bills are included	
Content: SACE title	1=Answer falls into categories 21 to 22; 0=else (including "don't know")	Can you tell me, what the content of the initiative "in favor of more flexibility in the AVS" was? [Free form answers were categorized by the GfS according to Table 12]

Table 10: Continued

Variable	**Definition**	**Question wording [Possible answers in brackets]**
Content: Green title	1=Answer falls into categories 31 to 34; 0=else (including "don't know")	And what was the content of the initiative "in favor of flexible retirement starting at age 62"? [Free form answers were categorized by the GfS according to Table 12]
Differently perceived content	1=*Content: SACE title*=1 and *Content: Green title*=1; 0=else	
		Let's talk about the importance that the ballots on the 26th of November had for you personally. Give me a number between 0 and 10. 0 means of absolutely no importance, 10 means of very high importance.
Higher importance SACE	1=SACE has a higher personal importance than Green; 0=else	How important was the initiative "in favor of more flexibility in the AVS" for you personally? [0...10, d.k., n.a.]
Higher importance Green	1=Green has a higher personal importance than SACE; 0=else	How important was the initiative "in favor of flexible retirement starting at age 62" for you personally? [0...10, d.k., n.a.]
Difference in importance	1=*Higher importance SACE*=1 or *Higher importance Green*=1; 0=else	
Decision easier	1=one of the initiatives was perceived to be more difficult to decide; 0=else	Did you consider with the given information that it was rather easy or rather difficult to judge the personal consequences of the initiative "in favor of more flexibility in the AVS"? Did you consider with the given information that it was rather easy or rather difficult to judge the personal consequences of the initiative "in favor of flexible retirement starting at age 62"? [rather easy, rather difficult, d.k., n.a.]
Age		May I ask you how old you are? [free form]
Male	1=male; 0=female	

Table 10: Continued

Variable	**Definition**	**Question wording [Possible answers in brackets]**
Education	1=mandatory school; 2=traineeship; 3=high school; 4=vocational school; 5=university of applied science; 6=university	Please tell me which of the following educational paths have you completed : university, university of applied science, vocational school, high school, apprenticeship, mandatory school [yes, no, n.a.]
Own apartment	1=property; 0=else	The current apartment is ... [owned, cooperative, rented/leased, n.a.]
Latin	1=individual living in French or Italian speaking region; 0=else	
SVP, CVP, FDP, SP, Green	Dummy variables indicating the closest party	Which party with its goals and views, represented in the National Council and the Council of States, most corresponds with your own ideas and perspectives? [free form]
Clerk Association	1=active member, passive member or could imagine to join; 0=else	I'm reading to you a list of organizations. Could you tell me, whether you are an active or a passive member, and whether you could imagine to join or never to join it? ...Clerk association (like SACE)... [active member, passive member, could imagine to join, could not imagine to join, d.k., n.a.]
Deviation pol. center	absolute deviation of the given number from 5	LEFT, CENTER and RIGHT, are terms which are often used to characterize political opinions. Could you tell me, where you are located on a scale where 0 corresponds to completely left, 5 implies center and 10 corresponds to completely right. [0....10, d.k., n.a.]
Decision at the beginning	1=decision made more than 4 weeks in advance of the ballot; 0=else	Approximately when did you decide, how you will vote? Was this clear from the beginning, or did you only decide over time? Please specify in days or weeks. [free form]

Table 10: Continued

Variable	**Definition**	**Question wording [Possible answers in brackets]**
Interest in politics	0=not at all; 1=rather not; 2=rather; 3=very	Generally speaking, how interested are you in politics? Are you very interested, rather interested, rather not interested or not at all interested? [very interested, rather interested, rather not interested, not at all interested, d.k., n.a.]
Ballot experience	number of ballots where individual participates	Let's assume, that in the course of a year there are ten federal elections. In how many of these elections do you normally participate? [0...10, d.k., n.a.]
Discuss about Politics	0=never; 1=seldom; 2=often	How often do you discuss political issues with your friends and acquaintances? Is this often, seldom or never the case? [often, seldom, never,d.k., n.a.]
		How did you follow and form your opinion during the electoral campaigns? With which media form did you learn about the pros and cons? Please tell me what you used (or didn't use) to inform yourself about the different standpoints? [used, not used, d.k., n.a.]
Print: Newspaper	1=used; 0=else	Did you read articles in newspapers and magazines?
Print: Government information	1=used; 0=else	Did you read the official information booklet provided by the government?
Audio: Radio	1=used; 0=else	Did you listen to radio broadcasts concerning the election?
Audio: TV	1=used; 0=else	Did you watch TV programs which dealt with the election?
Remember only one initiative	1=remembered only SACE or only Green initiative; 0=else	Last weekend/the weekend before last were federal elections. What were the topics? Can you tell me the names of the ballots? [free form]

Note: Observations from individuals who responded with "no answer" or "don't know" were dropped from the analysis. For the variables *Differently perceived content*, *Content: SACE title* and *Content: Green title* "don't know" answers are still considered as valid observations.

Table 11: GfS Categorization of Answers Concerning the Perceived Content of the Initiatives

	What was the content of the initiative "in favor of more flexibility in the AVS" ("in favor of flexible retirement starting at age 62")?
10	**General statements**
11	generally positive statements
12	generally negative statements
13	approximately the same, no difference [this category only exists for the Green initiative]
19	other general statements
20	**Reference to women**
21	no increase in the age of female retirement, against an increase in the age of female retirement
22	earlier retirement of women
23	less work for women
24	increase in the age of female retirement
29	other reference to women
30	**Reference to the retirement age / AVS**
31	lower retirement age, stop working earlier, decrease in the age of retirement, before 65
32	flexible retirement age, retirement as desired, "à la carte"
33	retirement age 62, AVS starting at 62
34	all should retire earlier, reference to all
35	same retirement age for women and men, equalize the retirement age
36	also flexible for part time work, reference to part time work
37	reference to other number: pension starting at 58 etc.
38	Cutting AVS pensions, reducing AVS pensions
39	other reference to retirement age / AVS
40	**Reference to financial questions**
41	retire earlier without financial consequences, full pension starting at 62, no partial pensions
42	refinancing the AVS / financing the AVS
43	costs, large costs
49	other reference to financial questions
90	**Other**
91	bill was to complicated
92	reference to persons (relatives, friends, politicians, etc.)
98	**don't know**
99	**no answer**

Procedures and Response Rate (Bieri et al. (2001))

The VOX72 telephone interviews were conducted by the GfS Research Institute (see http://www.gfsbern.ch/e/) between the 27th of November and the 8th of December 2000. 32 percent of the interviews were conducted in the first week. The average interview lasted 27 minutes (with a standard deviation of 9 minutes).

The VOX-sample is drawn from the population of individuals eligible to vote (i.e., Swiss citizens aged 18 and older), who are listed in the Swiss telephone directories. Interview candidates were selected according to a layered random sampling procedure. In a first step the number of necessary contacts per language region was determined according to the actual number of inhabitants in the corresponding region. In a second step the interviewers assessed whether they were calling a private household with at least one person who is entitled to vote. If more than one person was entitled to vote the participating subject was randomly chosen.

Table 12: Response rate

Total number of addresses used	5661
1. Type of failure: source failure	
number does not exist anymore	417
not a private household	39
household with no eligible voter	211
2. Type of failure: contact problems	
technical contact problem	107
1 to 4 calls with no contact before the end of the survey period	1919
5 contacts, excluded	101
date arranged but not reached	54
3. Type of failure: cooperation problems	
hung-up when contacted	26
lacking willingness to provide information	1502
hung-up during interview	51
4. Type of failure: Problem with overrepresentation	
no target person available in household	210
5. Type of failure: quality problems	
excluded after compiling the data set	0
Usable interviews	1024

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